

**BACKGROUND OF INVENTION**

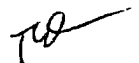
[0002] This skateboard truck is a new configuration of my previously

designed skateboard truck the Pneumatic Compression Strut

Skateboard Truck, patent number 6,224,076 as of May 1, 2001.

This new devise is an improvement upon the formally patented skateboard truck suspension system technology, by further advancing the balance stability of the skateboard truck.

Additionally, the new design consists of a suspension system which includes components that are easily interchangeable, giving the rider the ability to customize the truck response according to their weight and riding ability. This equates to advanced maneuverability with respect to superior steering stability and therefore steering ease.



## SUMMARY OF INVENTION

[0003] The invention claimed is a skateboard truck intended for use in all categories of general skateboarding. This skateboard truck diverges from traditional skateboard trucks by incorporating an elastomer suspension system.

[0004] The suspension system utilizes two elastomer shock absorbers, which are bilateral and equidistant between the hanger and base plate of the skateboard truck. These elastomer shock absorbers significantly suppress and eliminate shock forces associated with all styles of skateboarding. This permits more direct movement of the skateboard truck to dramatically enhance guiding stability and therefore guiding control. This design allows customization of truck response with easily interchangeable shock absorbers. Further, the shock absorber design can be produced with a molded or cast process, thus improving the manufacturability of the assembly.

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## BRIEF DESCRIPTION OF DRAWINGS

[0005] *Fig. 1* is a rear perspective view of the Elastomer Suspension

System skateboard truck showing our new design and structure

thereof;*Fig. 2* is a front perspective view of the Elastomer

Suspension System skateboard truck, showing our new design and

structure thereof;*Fig. 3* is a rear view of the skateboard truck. This

view depicts both elastomer shock absorbers and their attachment

to the truck hanger and truck base plate, as well as, the pivot

assembly utilizing elastomer bushings around the king pin

thereof;*Fig. 4* is a right side view showing the elastomer shock

absorber mounted between the truck hanger and truck base plate.

This view further represents the pivot assembly utilizing elastomer

bushings around the king pin thereof;*Fig. 5* is a left side view

showing the elastomer shock absorber mounted between the truck

hanger and the truck base plate. This view further represents the

pivot assembly utilizing elastomer bushings around the king pin

thereof;*Fig. 6* is a front view of the skateboard truck delineating

the connection of the elastomer shock absorbers between the

skateboard truck hanger and the truck base plate thereof;*Fig. 7* is a

top view of the skateboard truck thereof;*Fig. 8* is a rear view of the

skateboard truck base plate outlining the orientation of the conically shaped shock absorber mounting studs thereof;*Fig. 9* is a rear view of the skateboard truck hanger, which portrays the elastomer shock absorbers mounting studs and the hanger pivot post thereof;*Fig. 10* is a cross sectional view of the left side of the skateboard truck renders both elastomer bushings secured by the king pin and hex nut, forming the pivot assembly between the skateboard truck hanger and truck base plate thereof;*Fig. 11* is a perspective view of the elastomer shock absorber thereof;*Fig. 12* is a cross sectional view of the elastomer shock absorber showing both conically shaped shock absorber mounting orifices.

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**DETAILED DESCRIPTION**

[0006] The following is the detailed fabrication narrative of the Elastomer Suspension System Skateboard Truck. The truck is for attachment and use on all standard skateboard decks. This skateboard truck differs by all previous designs of skateboard trucks, by incorporating an easily interchangeable elastomer suspension system. This elastomer suspension system substantially reduces or eliminates the extreme impact shock forces related to all types of skateboarding. In addition, the elastomer suspension system provides enhanced control and maneuverability of the skateboard. Elastomer shock absorbers of various hardness, or density, can easily be interchanged to provide optimization of truck response according to a rider's weight and ability.

[0007] The skateboard truck hanger shall be cast from aluminum or other suitable metallurgical alloy. The hanger includes the fundamental body (2), which has raised conically shaped shock absorber mounting studs (4)(6) that are central to the circular recessed elastomer shock absorber retention cutouts (8)(14), which are opposite and equidistant from one another. Non-slipping axle (24) with extended axle terminal end studs (16)(18), pivot post (20)

extending perpendicular from the fundamental body (2). A semicircular through-holed aperture yoke (22), extending radial and perpendicular to the horizontal axis of the posterior side of the fundamental body (2) of the hanger, for means of mounting both top (78) and bottom (74) elastomer shock absorbing bushings, providing a pivot joint for the hanger assembly and securing the hanger to the base plate (70).

[0008] The skateboard truck axle (24) shall be machined from various metallurgical alloys and orientated central to the horizontal axis of the fundamental body (2) of the hanger. The axle terminal end studs (16)(18) shall be die threaded to accommodate skateboard wheels and secured by means of hexagonal jam lug nuts (26)(28).

[0009] The skateboard truck base plate (70) shall consist of a raised through-holed attachment socket (30) where the king pin (32) is inserted through for means of attaching and securing the hanger to the base plate. Cutouts will be cast into the base plate directly under the elevated elastomer shock absorber mounting platforms (34)(36) to reduce excess mass to the base plate. Opposite and equidistant on each elevated elastomer shock absorber mounting

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platform, shall be one each of a raised conically shaped elastomer shock absorber mounting studs (38)(40). Through-holes shall be machined drilled in each corner of the base plate, with one in each corner of the posterior end of the base plate (42)(44) and two in each corner of the anterior end of the base plate (46)(48)(50)(52) to facilitate attachment of the base plate and truck assembly to a skateboard deck. In the center posterior portion of the base plate is a recessed socket (54), inserted with a elastomer cup (56), providing a pivot joint on which the pivot post of the hanger will rotate.

[0010] The skateboard truck will employ two elastomer shock absorbers (12) and will be fabricated from various densities of elastomers to facilitate customization of the suspension system. The elastomer shock absorbers are cylindrical along their vertical axis and being spherically formed at the midpoint (58) (60). They are opened at either end with mounting orifices (62)(64), which makes possible the mounting and securing the elastomer shock absorbers to the raised conically shaped elastomer shock absorber mounting studs (4)(6)(38)(40) of both the skateboard truck hanger and the base plate.

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[0011] The king pin (32) shall be a button head cap screw of standard size and produced from suitable metallurgical materials. One end of the king pin will be die threaded (68) to secure the skateboard truck assembly to the skateboard truck base plate (70) by means of a hexagonal jam nut (76). The king pin (32) is inserted all the way through the bottom elastomer bushing retention washer (72), bottom elastomer shock absorbing bushing (74), semicircular through-holed aperture yoke (22), top elastomer shock absorbing bushing (78) top elastomer bushing retention washer (80), and finally through the raised through-holed attachment socket (30) where the die threaded end (68) will be secured by the hexagonal jam nut (76) flush with the anterior side of the base plate (70).

[0012] The Elastomer Suspension System Skateboard Truck is now fully assembled (10) and ready to be mounted to a skateboard deck.